

### **REMARKS**

The Office Action dated November 2, 2006, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claim 2-12 are currently pending in the application, of which claims 10 and 12 are independent claims. Claims 2, 5, 8, 10, and 12 have been amended to more particularly point out and distinctly claim the invention. No new matter has been added. Claims 2-12 are respectfully submitted for consideration. Entry of the amendments is respectfully requested because it places the application in condition for allowance, or alternatively because it places the application in better condition for appeal.

Support for the amendments to claims 10 and 12 may be found, for example, at page 21, line 6, to page 22, line 5, and Figure 5 of the present application as originally filed.

Claims 1-2 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,376,940 of Shibuya et al. ("Shibuya"). Applicant respectfully submits that this rejection is moot because claim 1 has been cancelled without disclaimer or prejudice and claim 2 has been made to depend from claim 10, which the Office Action

acknowledges is not anticipated by Shibuya. Thus, withdrawal of the rejection is respectfully requested.

Claims 1-6 and 8-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent No. 1,004,421 of Emoto et al. ("Emoto I") or U.S. Patent No. 5,679,384 of Emoto ("Emoto II") in view of Shibuya. The Office Action took the position that Emoto I or Emoto II discloses "a similar method and apparatus." The Office Action took the position that although neither Emoto I nor II discloses attaching a magnet to the rotor, Shibuya discloses this feature, and thus it would have been obvious to provide such a magnet. The rejection of claim 1 is moot, because claim 1 has been cancelled without disclaimer or prejudice. Applicant respectfully submits that claims 2-6 and 8-11 recite subject matter that is neither disclosed nor suggest in the combination of Emoto I or Emoto II and Shibuya.

Claim 10, upon which claims 2-9 and 11 depend, is directed to a control method of a rotational speed of a screw for an injection molding machine, wherein rotation of a motor is transmitted the screw disposed within a cylinder member attached to an injection frame. The method includes sending an electric current to a stator attached to the injection frame. The method also includes rotating a rotor which is disposed radially inward of the stator, the screw, and an element to be detected having a first pitch and a second pitch. The method further includes detecting a rotational speed of the screw by

detecting the first pitch by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the element to be detected. The method additionally includes detecting an absolute position of a magnet attached to the rotor by detecting the second pitch different from the first pitch by the detecting element.

Applicant respectfully submits that the none of the combinations of Emoto I, Emoto II, and Shibuya disclose or suggest all of the elements of any of the presently pending claims.

Shibuya generally relates to a drive motor and drive apparatus for a molding machine. As explained at column 3, lines 6-15, Shibuya describes a motor in which the rotary motor section Mr includes a rotor 40 fixed to a shaft 3, and a stator 41 fixed to the casing, which together constitute a synchronous servomotor.

Emoto I generally relates to an injection molding machine. Emoto I aims to provide an injection molding machine with improved mechanical efficiency and reduced inertia, as explained at paragraph 0033 of Emoto I. In addition, Emoto I aims to reduce the axial length of the injection molding machine and facilitate assembly and maintenance of the machine.

Emoto II generally relates to an injection apparatus for an electric injection molding machine. Emoto II aims to provide an injection molding machine that facilitates maintenance and management, and that enhances accuracy in controlling speed and position of the screw, as explained at column 3, lines 13-19. Additionally, Emoto II aims to overcome some of the problems of previous injection molding machines such as the very large capacity requirement for metering motors.

Claim 10 recites “detecting a rotational speed of the screw by detecting the first pitch by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the element to be detected” and “detecting an absolute position of a magnet attached to the rotor by detecting the second pitch different from the first pitch by the detecting element” (emphases added). The cited references (whether taken individually or in combination) fail to disclose or suggest these features.

More particularly, none of the cited references disclose an element to be detected having a first pitch and a second pitch. Therefore, with the disclosure of the cited references “detecting a rotational speed of the screw by detecting the first pitch by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the element to be detected” and “detecting an absolute position of a magnet attached to the rotor by detecting the

second pitch different from the first pitch by the detecting element” (emphases added) cannot be realized. Thus, it is respectfully requested that the rejection be withdrawn.

Because these features cannot be realized with the disclosure of the cited references, critical and unobvious advantages of certain embodiments of the present invention cannot be realized in the cited art. For example, one of ordinary skill in the art would not be able to rotate the screw with high precision and to implement the metering smoothly without the benefit of the present application. Accordingly, the precision of the rotating of the screw could be degraded, the metering of the molten resin could become unstable, and the defective moldings could occur, which could degrade productivity in the manufacturing process.

Accordingly, it is respectfully submitted that the critical and unobvious advantages of certain embodiments of the present invention establish non-obviousness over the cited art. Thus, for this additional reason, it is respectfully requested that the rejection be withdrawn.

Claims 2-6, 8-9, and 11 depend from, and further limit, claim 10. Accordingly, it is respectfully submitted that each of claims 2-6, 8-9, and 11 recites subject matter that is neither disclosed nor suggested by the combination of Emoto I or Emoto II and Shibuya.

Claims 6-7 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto I or Emoto II and Shibuya in view of U.S. Patent No. 5,864,192 of Nagate et al. (“Nagate”). Applicant respectfully submits that the claims recite subject matter that is neither disclosed nor suggested in the cited art.

Claims 6-7 depend from claim 10. The deficiencies of the combination of Emoto I or II and Shibuya with regard to claim 1 are discussed above. Nagate does not remedy the deficiencies of Emoto I or Emoto II and Shibuya because Nagate does not provide disclosure or suggestion that would motivate one of ordinary skill in the art to perform “detecting a rotational speed of the screw by detecting the first pitch by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the element to be detected” and “detecting an absolute position of a magnet attached to the rotor by detecting the second pitch different from the first pitch by the detecting element” (emphases added) as recited in claim 10. Claim 12 has its own scope, but recites similar relevant features, and was not separately rejected.

Nagate generally relates to a brushless motor with magnetic sensor to detect leaked magnetic flux. Nagate is silent as to “detecting a rotational speed of the screw by detecting the first pitch by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the

element to be detected” and “detecting an absolute position of a magnet attached to the rotor by detecting the second pitch different from the first pitch by the detecting element” (emphases added) as recited in claim 10. Accordingly, it is respectfully submitted that the combination of Emoto I or Emoto II, Shibuya, and Nagate fails to disclose or suggest all of the elements of claims 6-7 and 12, and it is respectfully requested that the rejection of claims 6-7 and 12 be withdrawn.

Claims 1-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto I or Emoto II in view of Nagate. The rejection of claim 1 is moot because claim 1 has been cancelled without prejudice or disclaimer. Applicant respectfully submits that the claims recite subject matter that is neither disclosed nor suggested in the cited combination.

The claims and references are discussed above. As explained above, the combination of Emoto I or Emoto II, Shibuya, and Nagate fails to disclose all of the elements of the claims, and therefore the reduced combination of Emoto I or Emoto II and Nagate fails to disclose all of the elements of the claims. Accordingly, it is respectfully requested that the rejection of claims 2-12 be withdrawn.

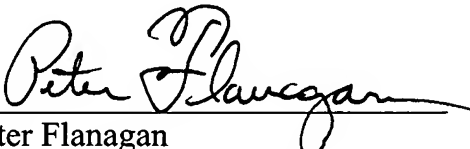
For the reasons explained above, it is respectfully submitted that each of claims 1-12 recites subject matter that is neither disclosed nor suggested in any combination of the

cited references. Accordingly, it is respectfully requested that all of claims 1-12 be allowed and that this application be passed to issue.

If, for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

  
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Enclosures: Petition for Extension of Time